Peirce's Theory of Inquiry as a Poetological Model: The Case of Literary Realism

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The article presents the philosophy of Charles Sanders Peirce as a bridge between the so-called hard sciences, on the one hand, and the humanities and the arts, on the other. By following Hans Vilmar Geppert's theory of literary realism, that is, his Peircean 'realist semiotics', a scientific methodology can be traced in a poetological model. Geppert's application of semiotics to literary realism and to general issues of communication offers two original insights: besides re-evaluating the historical realism of the nineteenth century, his theory of inquiry as the pragmaticist response to an immediate communicative crisis proposes a viable poetological model for today's artistic needs as well, thereby making the dialogue between science and the humanities or arts possible once again.

Semiotics and machines

The problem of the semiotic status of mechanically produced phenomena is a distant echo of Charles Percy Snow's idea of the mutual incomprehension dividing the 'two cultures', that is, (natural) scientists and (literary) 'intellectuals'. I will address the issue by posing the following question: How does a human being relate to, and interpret, the signs that are produced 'mechanically', that is, by a machine, in a technological process that employs scientific findings or some other algorithms to 'create' new signs without any immediate human intervention or control?

Espen J. Aarseth's groundbreaking theorization of cybertext as the new media textuality produced by 'textual machines'[1] notes the problematic 'signal-semiotic threshold' that emerges within the cybernetic text, which partially escapes the author's control by proposing a virtually un-

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limited array of readings according to some specific rules that are an inseparable part of the text. The self-manipulating textual device splits the output into a duality of the signal – the materialized entity excluded from the semiotic – and the signifying effect of the output on the reader-user. As opposed to, say, cinema, where the dual existence of a film tape and a projection is trivial, in a cybertext the relationship between the (hidden) code and the expressive level is 'arbitrary'. The expressive level escapes the author's control, partly leaving the domain of interhuman communication.[2] For Aarseth (22, 29, 31), the semiotic aspects of a cybertext are limited to, first, the observation of human reception of the system (that is, to the ways in which the user transforms signals into meaningful signs), and, second, to the implied teleology, which consists of the intentions of the constructor of the textual machine, as they are accessible, say, to an analysis of algorithms. David Link (85), a new media artist and theorist, reaches a similar conclusion: the user of a textual adventure game has to obtain a 'linguistic incompetence' (*Sprach-Inkompetenz*), or to accept a 'mental defect' (*Behinderung*), to be able to communicatively enter the realm of a computer game. The source of this apparent communicative vagueness is the fact that a computer, which is essentially a Turing machine, does not function on the level of represented information but on a pre-semiotic stage of separating one homogeneous materiality into artificially distinct states.[3]

Such problematic issues pertain not only to artistic practices, but also to digital humanities. The first 'Pamphlet' of the Stanford Literary Lab, directed by Matthew Jockers and Franco Moretti, considers results of computer based quantitative analyses of literary genres in a self-critical manner.

> [The computer-generated] image of genre [that is, the diagrammatic presentation of variations within databases] was clearly also incomplete, because differential features may tell us all we need to know in order to demarcate one form from another, and yet very little about that form's inner structure. If all men in an audience wore pink, and all women blue, the colours would differentiate them *perfectly*, and tell us *nothing* about them. […] [F]or the time being, the gain seems to be comparative more than qualitative: great*er* clarity, rather than clarity of a different type. (Allison et al. 18, 24)

The computational output[4] does not disclose new meanings explaining the database of novels, the input data; instead, it provides 'great*er*' clarity, that is, quantitatively greater mastery of the phenomenon at hand. It appears that the impasse of the non-semiotic information processing remains unchallenged – even if we consider the importance of the vast quantitative increase in the scope of the analysis.[5]

Aarseth proposes to solve problems concerning the semiotic and the non-semiotic features of a cybernetic system by introducing the idea of emergent properties. However, he does not seem to clearly distinguish the emergent behaviour from a malfunction of the cybernetic system in an algorithmic literary work (40, 124).[6] The concept of emergent properties may be of value in explaining (dis)continuities between physics, chemistry and biology, while the signification that becomes relevant at the level of society and culture does not seem to be available to the apolitical notion of a discontinuity between different orders of reality. (System theory and radical constructivism take the dynamics of society for granted and thus reduce them to an 'insignificant' question; the Foucauldian tradition exemplifies the counterargument.)[7]

What is a sign?

The question of the semiotic levels of various artificial and natural phenomena refers back to the definition of a sign. The structuralist semiology from Ferdinand de Saussure onwards considers a (linguistic) sign to be the duality of a sign and a referent, the duality mirrored in the relation between the sign's signifier and the sign's signified. The link between both elements is arbitrary and conventional. Saussurian tradition postulates a systematic code, *langue*, which is always already there as a sign is being interpreted. 'Natural' signs – that is, features not produced by communities of humans[8] – therefore do not exist. It seems that if algorithms randomly, or incomprehensibly, produce phenomena that can be identified as signs for humans to interpret, then these entities are not actually signs, but mere 'insignificant' materialities.

This is obviously not the case. Scientific research, which by definition supplies meaning to natural phenomena, is a case in point. Hence, an alternative conception of sign is needed. Indeed, the tradition of semiotics founded by Charles Sanders Peirce provides such an alternative. According to Peirce, a sign is what is interpreted as a sign (Geppert, *Der realistische Weg* 40, 80); for instance, a typical indexical sign is smoke that stands for fire. The link between the sign and the object is not a convention (such as *langue*), but the consequence of an existential fact, which is affirmed in the interpretation. Peircean sign is a genuine triadic relation of the representamen (that is, the sign), the object and, most importantly, the interpretant (the irreducible unit consisting of a new sign interpreting the original sign).[9] As a practicing chemist and geodesist, a 'hard' scientist by occupation, Peirce proposes a semiotic theory suitable for research into natural phenomena.

Signs may be produced in any way imaginable, including – concerning the previous examples – by some computer (mal)function.

Pragmaticism, semiotics, and the theory of scientific inquiry

In Peirce's late period, and as part of the third and 'Final Account' of signs (1906–1910), semiotics is linked to Peirce's theory of inquiry and to pragmaticism (see Atkin). The semiotic becomes closely connected with

> the standard idea of scientific method […] as being the method of constructing hypotheses, deriving consequences from these hypotheses, and then experimentally testing these hypotheses (guided always by the economics of research). […] Peirce increasingly came to understand his three types of logical inference as being phases or stages of the scientific method. For example, as Peirce came to extend and generalize his notion of abduction, abduction became defined as inference to and provisional acceptance of an explanatory hypothesis for the purpose of testing it. Abduction is […] inference to some explanation or at least to something that clarifies or makes routine some information that has previously been 'surprising,' […] given our then-current state of knowledge. Deduction came to mean […] the drawing of conclusions as to what observable phenomena should be expected if the hypothesis is correct. Induction came for him to mean the entire process of experimentation and interpretation performed in the service of hypothesis testing. (Burch)

The 'surprising' phenomenon is the starting point of every scientific inquiry, which triggers 'abductive' reasoning that proposes a hypothesis, which is followed by deduction and the most costly part of research, the testing (Peirce's induction). Peirce in fact equates abduction with pragmaticism as such and with the economics of inquiry – for if a hypothesis cannot be tested, no knowledge is ever gained, which, from the pragmaticist point of view, logically invalidates the hypothesis (see the term 'Abduction' in *The Commens Dictionary*). Compared with Saussurean semiology, Peircean model of sign is obviously more apt to explain the different semiotic and possibly pre-semiotic domains, as far as they are relevant to any actions by the humans. In Peirce, the famous 'two cultures' virtually melt.

Peirce's pragmaticist theory of signs as a poetological model

Is it possible to apply Peirce's semiotics, which is, as we have seen, compatible with his scientific methodology, to artistic practice? The following example should demonstrate a structural compatibility between

Peirce's pragmaticist semiotics and the (implicit) poetics of nineteenth-century literary realism. The link to a scientific theory of inquiry, stressed in Peirce's late works, proposes a possible answer to the dilemma of the significance of signs that do not depend on a pre-existing code. The non-human (proto)signs – natural signs as well as those produced by apparatuses – are thus (potentially) reintroduced into culture through the great novelistic tradition.

In his 1994 monograph *Der realistische Weg* (The Realist Way), the German comparative literature scholar Hans Vilmar Geppert successfully demonstrates a similarity between Peirce's pragmaticism and the literary realism of the nineteenth century[10] at the level of their theoretical frameworks. Both phenomena are historically simultaneous and based on the same sources; however, Peirce's thought did not directly influence authors and theorists of nineteenth-century realism. Should a project of linking the Peircean tradition with realism attempt to present a generally valid *logica utens*[11] within the domain of the semiotic, two challenges would necessarily be involved: first, the deconstructive approaches would need to be accounted for, since they have introduced skepticism towards all conceptions of 'reality' throughout the humanities; second, the so-called 'realist' mode of writing, including verisimilitude, should be addressed. Both problems should be tackled if Peircean semiotics is to be reinterpreted as a (realist) discursive practice that transcends a mere historical similarity between two nineteenth-century discursive regularities.

The realist semiotics

The Peircean answer to the challenges of deconstruction is a selective 'inclusion' of deconstruction into the whole of the pragmaticist theory of the sign. Geppert points to an analogy between Peircean infinite semiosis[12] and Derrida's notion of 'différance', while noting that 'for Peirce to expel the truth categorically in the "absence" would be a meaningless idea; even if it is never immediately "present", especially not in any system (in any additional similarity), it nevertheless cannot be grasped in any other way than through language and signs'.[13]

Pragmaticism is a kind of semiotics that gains relevance only when the normal signs fail, when – as in science – a 'surprising' phenomenon is encountered and demands explanation, or when – as in literary realism – people are faced with an imminent crisis of signs, that is, when signs clash violently with reality. The deconstructive answer is meaningless – useless – insofar as it merely affirms the *status quo* of the crisis. For Peirce, the

meaning of a sign is a human habit (grounded in the community and intended to last indefinitely). If a new and at least potentially generally valid relationship towards reality is needed, it has to be somehow reconstructed, even while facing the famous rubble-heap of Walter Benjamin's Angel of History. The 'principle of Peirce'[14] states the following: 'Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object.' (Peirce 293) The meaning of a surprising fragment is its interpretant (conceivable practical effects), which is imminently needed in a given situation.

For Geppert (54, 152), literary realism is the art of the interpretant, stemming from an immediate experience of a semiotic, and therefore existential, crisis. Peirce's six-level model of the sign – representamen, immediate interpretant, immediate object, dynamic object, dynamic interpretant, final interpretant – translates into realist discourse as follows: The 'realist way' starts from the immediate interpretant as the first interpretation of the representamen evoking the conventions in a dysfunctional state, which produces the immediate object, 'the motivated illusions',[15] such as Emma Bovary's self-destructive expectations about the world. It is the media-induced 'inter-reality' that clashes violently with the given conditions, the dynamic object. The crisis is 'amplified' in the reproduction and condensation of available cultural codes and their effects in – and on – the hero's or heroine's illusions. The dynamic interpretant[16] is the narrative arch of the realist novel. It consists of a multiplicity of immediate interpretants with their immediate objects in experimental recombinations. It is in the recombinant constellations of the dysfunctional cultural codes that the realist verisimilitude is grounded – realism does not reproduce reality but the discontinuous archive of cultural codes (as conceptualised by, say, Foucauldian archaeology). The final interpretant is the method itself, realism as a dynamic and continuous path that stands in stark opposition to a static spatial constellation.[17]

1 representamen

↓

2 immediate interpretant
dysfunctional conventions

↓

3 immediate object   *4 dynamic object*
motivated illusions, media-induced inter-reality   ≠   reality

reproduction, verisimilitude, archive →

← condensation, amplificatio of the crisis

↓

5 dynamic interpretant
narrative progression of the realist novel,
recombination of reproductions as a response to condensation

- -

6 final interpretant
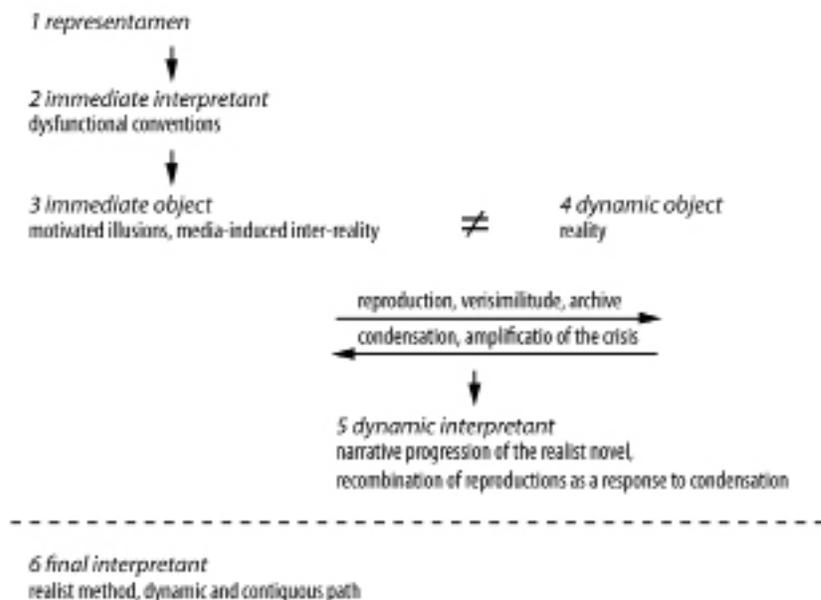realist method, dynamic and contiguous path

Figure 1: Peirce's six-level sign model in alignment with the scheme of the discourse of literary realism

Peirce's further semiotic differentiations facilitate an even more detailed explication of realist discourse, which additionally substantiates the analogy between realism and pragmaticism. At the level of the representamen – the different ways of perceiving the sign[18] – realism is constitutively linked with sinsigns (tokens), singular and uniquely concrete phenomena that demand interpretation. In fact, since Peirce is aware of the ubiquity of the semiotic – he accepts the Kantian 'transcendental unity of apperception', which covers the domain of the semiotic (see Geppert, *Der realistische Weg* 40, 11) – the genuine non-encoded phenomena that a human might need to interpret are very rare, as singular signs are utterances of legisigns (types), signs that depend on codes. Realism characteristically 'exploits' and 'uses-up' ('verbraucht') the existing codes. Realism cannot be coded, since it does not produce new legisigns (as literary symbolisms do): the legisign *in potentia* is an ordered archive of sinsigns that resists homogenisation. Geppert speaks of 'retro-semiosis' to highlight the non-unified regularity of the archive of cultural codes reproduced in literature.[19]

The indices – which, as part of the most well known Peircean semiotic triad, that of icon, index and symbol, are determined by an existential link between the sign and the object – are characteristic of realist discourse. In opposition to an icon, which resembles the object, or a symbol, which

depends on being decoded through the interpretant, an index is not based on any feature of the representamen. An index needs to be surprising in order to be distinct from the insignificant reality that surrounds it. In the realist discourse the symbols – the code-based conceptions of objects – 'degenerate' into icons, the images of imminent crisis. The only way to interpret the malfunction of the system-based orders of objects is by taking it as an iconic sign of the malfunction as such. Reality in realism is not taken for granted, it is a manifestation of unacceptable interpretations that demand a correction. The indices then take the role of the 'attention vectors' guiding the thought through the crisis-ridden iconic dispersion of the archive of the symbols. The indices provide a way out. The 'metonymisation of metaphor' and the 'realist media' are typical realist phenomena: for instance, money ceases to be part of the symbolic order and begins to signify a unique and concrete situation in its worldly continuum. What is realistic is the flow of reality through time, not its reflection (the icon of crisis). The realist symbol does not exist, only the symbol *in potentia* as a pluridirectional index is possible. The order within the network of indices is iconic, and additionally shifted to a meta-poetic level: Geppert calls this semiotic move a 'metapoetic allegory',[20] of which the most prominent example is the image of the (realist) 'way'.

For Geppert, realism is the art of the interpretant, which is why the relationship of the realist sign to what Peirce calls 'the {Final/Immediate} Interpretant'[21] is never guaranteed or given. Realism consists of propositions that can be affirmed or denied. Realist media are claims about what really exists and possesses an immediate relevance. Dicent signs[22] are parts of a continuous chain of inferences. The realist argument, that is, a sign from the point of view of correct or incorrect reasoning,[23] is the 'incomplete induction', the progressive testing of hypotheses as presented in Peirce's theory of inquiry. 'Late realism' regularly sways into *aporias*, the no-way-out situations (*Ausweglosigkeit*), however without breaking out into other modes of signification.

'The pragmatic narrative' and 'late realism'

A demonstration of Geppert's Peircean interpretation of realist novels lies beyond the scope of this article. The 'pragmatic narrative' ('pragmatisches Erzählen') touches upon all aspects of a realist work: Geppert even demonstrates regular semiotic movement in the titles of realist novels, for instance, the dynamic continuous movement of the meaning encoded in the ordered pair of the red and the black in the title of the Stendhal's

novel. Some sort of reverse perspective is to focus on 'late realism', which, for Geppert, is situated on the margins of realist discourse. It is possible to show that Dickens's novel *Hard Times* (1854) is an archive of voices (in the Bakhtinian sense) of characters and the different narrators (see Vaupotič). Geppert himself identifies a communicative discontinuity in the text/reader relation in Dickens's *Our Mutual Friend* (1864-65), where for almost one half of the novel the reader lacks the clues to understand the reality behind the characters' pretences (Geppert, *Der realistische Weg* 463). In this case, strangely, the reader, too, is separated from the voices in the novel. Each of the voices in a late realist narrative is autonomous, placed next to all others, equal in value, and irreducible to any unified system-based order, such as is attempted in the scheme of Zola's naturalism. The novel becomes a space of dispersion that resists unification and movement itself.

This apparently counters Geppert's thesis that the spatial dispersion, which is a sign of crisis, regularly turns into a pragmaticist continuous progression, akin to scientific inquiry. The novel is a continuous path from one crisis to another, all born from a retro-semiotic constellation of dysfunctional codes. The meaning is produced through allegory, which Walter Benjamin once enigmatically explained as:

> Just as a mother is seen to begin to live in the fullness of her power only when the circle of her children, inspired by the feeling of her proximity, closes around her, so do ideas come to life only when extremes are assembled around them. Ideas – or, to use Goethe's term, ideals – are the Faustian 'Mothers' (Benjamin 35)

It appears that a late realist novel such as *Hard Times* is at the same time a spatialised archive and a linear narrative – linear progression is somehow forced upon the archive of voices, but is nevertheless brimming with dynamic forces (denounced by Adorno as 'magic')[24] that demand concrete albeit pragmatic answers.

NOTES

[1] Rather than limiting cybertexts to computer-based manipulation of text, Aarseth includes any mechanical textual apparatuses, even, say, Raymond Queneau's *Cent mille milliards de poèmes* (1961).

[2] The notion of arbitrariness should not be construed here in a strict Saussurean sense, since cybertext is not necessarily a social phenomenon.

[3] 'Obwohl der Computer alle möglichen Medientypen, also auch Schrift, darzustellen vermag, operiert er nicht auf der Ebene der repräsentierten Information, sondern auf der ihr vorgehenden von Sein und Nichts, der reinen und deshalb bedeutungslosen Differenz. […] Anstatt Mengen zu bestimmen, bezeichnen Zahlen in [Turing's] Konstruktion

Zustände und halten Gleiches künstlich auseinander. Null und Eins setzen sich in einer Identität von Identität und Differenz ebenso entgegen wie sie in eins fallen, im Gegensatz zur herkömmlichen Mathematik, in der Null von Eins geschieden werden muß. Wer die Maschine im numerischen Feld verortet, verfehlt eine Pointe der Turing'schen Erfindung.' (Link, 44, 45)

[4] Consider, say, the method of principal component analysis as used in biology (see Cavalli-Sforza, Menozzi and Piazza 39ff).

[5] The quantitative leap, the previously unimaginable speed of information processing by means of computation, is itself one of the 'faces' of the signal–semiotic duality. Humans are now able to see regularities that were previously out of reach and could not take part in the understanding of the world. From this point of view the quantitative gain tentatively turns into a qualitative one, as, say, the new 'techno-gaze' redefines the human (see Bovcon).

[6] An aspect of this ambiguity is the difference between the ontological and the epistemological emergentism, or the 'strong' and the 'weak' emergentism (O'Connor & Wong).

[7] On the problem of emergentism in semiotics, see also Brier (1916ff).

[8] The ecocritical approaches attempt to extend the field of consciousness to non-humans such as domestic animals, which, however, merely shifts the point of the split between the semiotic and the non-semiotic.

[9] 'A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen. "Idea" is here to be understood in a sort of Platonic sense, very familiar in everyday talk; I mean in that sense in which we say that one man catches another man's idea, in which we say that when a man recalls what he was thinking of at some previous time, he recalls the same idea, and in which when a man continues to think anything, say for a tenth of a second, in so far as the thought continues to agree with itself during that time, that is to have a *like* content, it is the same idea, and is not at each instant of the interval a new idea.' (*A Fragment*, CP 2.228, c. 1897, in *The Commens Dictionary*).

[10] Geppert's concept of literary realism excludes naturalism.

[11] The 'logic in possession' as opposed to *logica docens*, which is learned by study (see the term 'Logica utens' in *The Commens Dictionary*). The Peircean formulation is comparable to the Foucauldian discursive formation.

[12] This is a problematic concept, which has been in its strict 'infinite' version later removed from the centre of Peirce's system (see Atkin).

[13] 'Sofern jedes Interpretans auf "some other possible sign of experience" […] verweist, hat Peirce entscheidende Momente einer "dekonstruktiven" Überwindung des Strukturalismus vorweggenommen; […] Derridas Begriff der "difference" (sic!) kommt einer bestimmten Form der unendlicher Semiose in der Tat sehr nahe. Aber für Peirce wäre es ein sinnloser Gedanke, Wahrheit prinzipiell in die "absence" zu verweisen; auch wenn sie nie direkt "präsent" ist, schon gar nicht in irgendeinem System (eine weitere Gemeinsamkeit), kann sie doch nicht anders als sprachlich-zeichenhaft gefaßt werden.' (Geppert, *Der realistische Weg* 79)

[14] As called by the author of the word *pragmatism*, William James (see Hookway).

[15] According to Geppert, Roland Barthes's 'éffet du reel' reduces the whole of the realist discourse to a single constituent part. 'Dieser Effekt entsteht aber nur dann, wenn man eben einen einzigen singular denominativen […] Objektbezug der Erzählzeichen […] isoliert. Andere Funktionen, z.B die historischen Konkretisationen, aber auch Funktionen

der Reflexion, Kritik, Progression, das "Verbrauchen" der Codes usw. heben ihn auf.' (Geppert, *Der realistische Weg* 129)

[16] Geppert calls it the 'actual interpretant' in order to stress the distinction in relation to the dynamic object in the text.

[17] Here, the contrast between Peirce's and Foucault's positions comes to the fore: Foucauldian spatial dispersion of the archive becomes an unacceptable image of crisis in Peirce's view, which demands an active step on the chosen 'path'.

[18] The triad consists of qualesign, sinsign (token) an legisign (type). An explanation of all of the categories would exceed the scope of this article.

[19] An archive without the strictly systematic order is compatible with Foucault's conceptions of the archive in *L'Archéologie du savoir*.

[20] In his *Abschiedsvorlesung, "Prodigium" und Chaos der "Zeichen in der Welt". Wilhelm Raabe und die Postmoderne*, Geppert points to a possibility of postmodernist-like features of allegoric imagination (which he construes in the sense of early Benjamin) at the poetic level itself, particularly in Raabe's works.

[21] It is used as if it were the immediate interpretant, even though it is located in the distant future as a sort of a Hegelian *Aufhebung* of the totality of semiosis.

[22] The triad of the relations of the sign to the final interpretant consists of rhema, dicent and argument.

[23] Geppert considers the following triad of signs from the point of view of correct or incorrect reasoning: abduction, induction, deduction.

[24] '[T]he theological motif of calling things by their names tends to turn into wide-eyed presentation of mere facts. If one wished to put it very drastically, one could say that […] [Benjamin's] study is located at the crossroads of magic and positivism.' (Adorno 129).

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